

REMARKS/ARGUMENTS

Claims 1-2, 4, and 7-24 are pending in the application. Claims 1, 9-10, 13, and 20 are amended herein. Support for the amendments to claims 1, 9-10, 13, and 20 is found on page 11, lines 14-16, of the specification. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

Claim Objections

In paragraph 4 of the office action, the Examiner objected to claims 1-2, 4, and 7-24 because of certain informalities.

Regarding claims 1 and 20, the Applicant has amended claims 1 and 20 as suggested by the Examiner. These amendments were not made to overcome any prior-art rejections.

Regarding claim 9, the Examiner stated that "pre-distortion to" in line 1 should be "pre-distortion, to." The Applicant disagrees. Since claim 9 is directed to an apparatus for applying pre-distortion to an input signal, the Applicant does not understand why claim 9 should recite "An apparatus for applying pre-distortion, to an input signal." The Applicant submits that inserting a comma after "pre-distortion" in line 1 of claim 9 would render the claim language needlessly confusing. As such, the Applicant has not amended claim 9 as suggested by the Examiner.

In view of the foregoing, the Applicant submits that the objections to the claims have been overcome.

Claim Rejections - 35 USC 112

In paragraph 6, the Examiner rejected claims 13-15 and 20-24 under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. In particular, the Examiner stated that claims 13 and 20 "contain subject matter of a first set of frequency components corresponds to positive and negative frequency components of an input signal; and a second set of frequency components corresponds to only positive frequency components or only negative frequency components of the input signal which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention."

In response, the Applicant submits that, as described on pages 14-15 of the specification, Fig. 8 shows an exemplary embodiment of the invention of claims 13 and 20 in which:

- o Blocks 814-820 correspond to an example of the first set of frequency components of claims 13 and 20, which first set corresponds to positive-frequency components and negative-frequency components of the input signal; and
- o Blocks 822-828 correspond to an example of the second set of frequency components of claims 13 and 20, which second set corresponds to only negative-frequency components of the input signal.

In addition, as described at the bottom of page 15 of the specification, Fig. 9 shows an exemplary embodiment of the invention of claims 13 and 20 in which:

- o Blocks 922-928 correspond to an example of the first set of frequency components of claims 13 and 20, which first set corresponds to positive-frequency components and negative-frequency components of the input signal; and
- o Blocks 914-920 correspond to an example of the second set of frequency components of claims 13 and 20, which second set corresponds to only positive-frequency components of the input signal.

Thus, each of Figs. 8 and 9 teaches an example of the first set of frequency components of claims 13 and 20, which first set corresponds to positive-frequency components and negative-frequency components of the input signal, while, taken together, Figs. 8 and 9 teach examples of the second set of frequency components of claims 13 and 20, which second set corresponds to either only negative-frequency components (as in Fig. 8) or only positive-frequency components (as in Fig. 9).

In view of the foregoing, the Applicant submits that the specification does in fact enable one skilled in the art to make and use the invention. The Applicant submits therefore that the rejections of claims under 35 USC 112, first paragraph, have been overcome.

Claim Rejections under 35 USC 102 and 103 and Allowable Subject Matter

In paragraph 8, the Examiner rejected claims 1-2 and 8 under 35 USC 102(b) as being anticipated by Yu. In paragraph 10, the Examiner rejected claims 9-10 and 16 under 35 USC 103(a) as being unpatentable over Yu in view of Johnson. In paragraph 11, the Examiner indicated that claims 4, 7, 11-12, and 17-19 were directed to allowable subject matter. For the following reasons, the Applicant submits that all of the now-pending claims are allowable over the cited references.

Claims 13-15 and 20-24

The Applicant notes that the Examiner has not rejected any of claims 13-15 and 20-24 based on prior art. As such, the Applicant assumes that the subject matter of those claims is allowable over the prior art of record.

Claim 1

In rejecting claim 1, the Examiner cited:

- o Yu's "pre-distortion signal I_{even} " as an example of the first frequency-dependent pre-distortion signal of claim 1;
- o Yu's "frequency components I_p " as an example of the first set of frequency components of claim 1;
- o Yu's "pre-distortion signal I_{odd} " as an example of the second frequency-dependent pre-distortion signal of claim 1; and
- o Yu's "frequency components I_N " as an example of the second set of frequency components of claim 1.

Yu teaches that "all coefficients of expansion in I_p are positive, even-order coefficients are positive in I_N , and odd-order coefficients are negative in I_N ." See column 5, lines 4-6. The expansions of

I_p and I_N are presented in Equations (7) and (8), respectively, where the values d_i are the magnitudes of the coefficients of those expansions. Thus, according to Yu, all of the coefficients in the expansion of I_p shown in Equation (7) have positive values, while the coefficients in the expansion of I_N shown in Equation (8) have either positive values (i.e., for even-order coefficients, e.g., the terms V^2 , V^4 , etc., in Equation (8)) or negative values (i.e., for odd-order coefficients, e.g., the terms V , V^3 , etc., in Equation (8)). Significantly, when Yu discusses "positive" and "negative," he is referring to the values of the coefficients, where negative coefficients have values less than zero, and positive coefficients have values greater than zero. Yu is not referring to the frequencies corresponding to those coefficients.

Claim 1 has been amended to clarify that (1) the first set of frequency components corresponds to positive-frequency components of the input signals, wherein the positive-frequency components correspond to frequencies that are greater than a center frequency of the input signal and (2) the second set of frequency components corresponds to negative-frequency components of the input signal, wherein the negative-frequency components correspond to frequencies that are smaller than the center frequency of the input signal.

The Applicant submits that Yu does not teach or even suggest such a combination of features. As such, the Applicant submits that currently amended claim 1 is allowable over Yu. Since claims 2, 4, and 7-8 depend from claim 1, the Applicant submits that those claims are also allowable over Yu.

Claim 9

Claim 9 has been amended to clarify that the frequencies of the first set of frequency components are different from the frequencies of the second set of frequency components. Even if Yu's I_p and I_N are assumed to be examples of frequency components (which the Applicant does not necessarily admit), the fact remains that Yu does not disclose that the frequencies of I_p are different from the frequencies of I_N . At most, Yu teaches that the values of the coefficients of expansion in I_p (i.e., all are positive) are different from the values of the coefficients of expansion in I_N (i.e., half are positive and half are negative). This is very different from teaching that the frequencies of the coefficients of expansion in I_p are different from the frequencies of the coefficients of expansion in I_N .

As described earlier, Yu teaches expansions of I_p and I_N in Equations (7) and (8), respectively. Since both expansions have the same set of terms (i.e., a first-order V term, a second-order V^2 term, a third-order V^3 term, etc.), the expansions of I_p and I_N taught in Yu have coefficients of expansion corresponding to the exact same set of frequencies. Thus, Yu does not teach or even suggest the frequencies of a first set of frequency components being different from the frequencies of a second set of frequency components.

Nor does Johnson provide the features of claim 9 missing from Yu.

As such, the Applicant submits that currently amended claim 9 is allowable over Yu and Johnson. Since claims 10-19 depend variously from 9, the Applicant submits that those claims are also allowable over Yu and Johnson.

Claim 20

As mentioned previously, the Examiner has not rejected previously presented claim 20 based on any prior art. Nevertheless, to move this case forward, the Applicant has amended claim 20 to clarify the meanings of the terms "positive-frequency components" and "negative-frequency components" in a manner similar to currently amended claim 1. For at least some of the same reasons presented earlier for

claim 1, the Applicant submits that currently amended claim 20 is allowable over the prior art of record. Since claims 21-24 depend from claim 20, the Applicant submits that those claims are also allowable over the prior art of record.

In view of the foregoing, the Applicant submits that the rejections of claims under 35 USC 102(b) and 103(a) have been overcome.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

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